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VOL. 22 No. 7 February 18, 1972

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH SERVICE
U.S.DEPARTMENT OF AGRICULTURE

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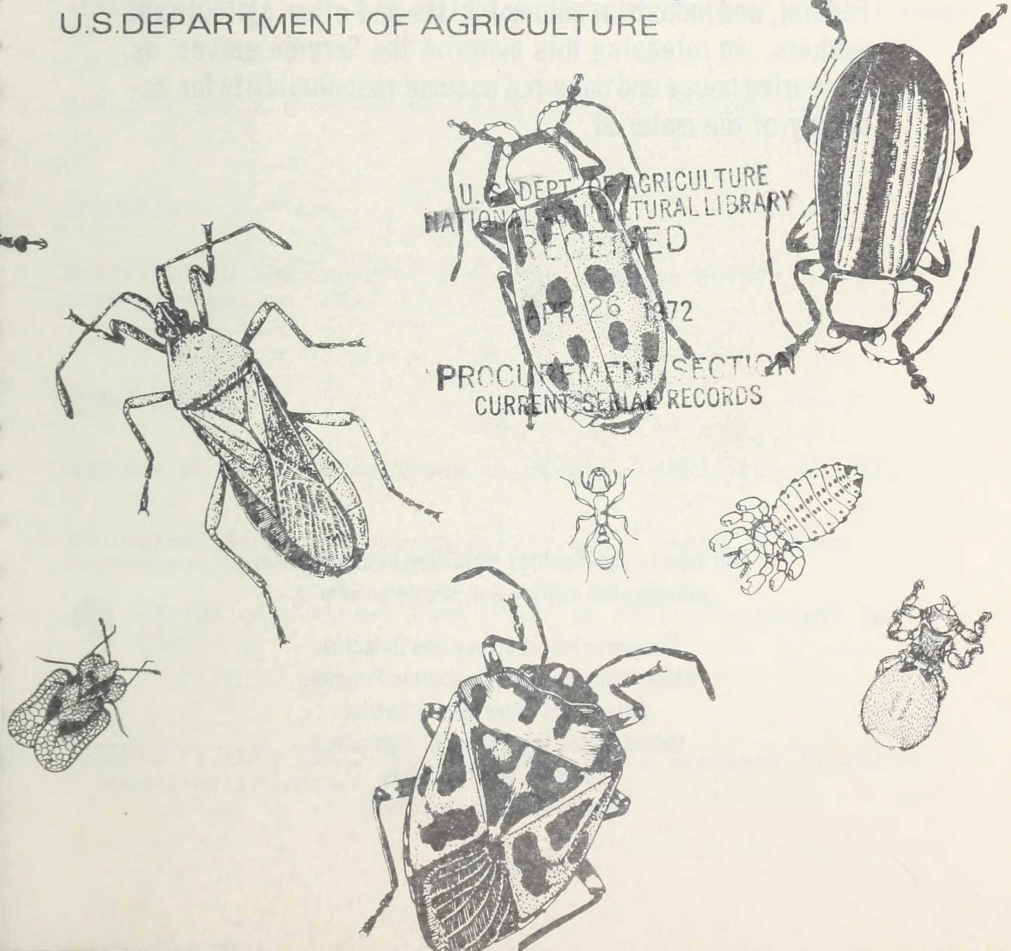

ANIMAL AND PLANT HEALTH SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

Volume 22 February 18, 1972 Number 7

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Condtions

GREENBUG counts light in small grains in several western States. (p. 41).

CORN LEAF APHID appeared in barley in New Mexico. (p. 41).

ALFALFA WEEVIL larvae heavy in alfalfa in limited areas of Texas. (p. 41).

SAN JOSE SCALE increase on fruit trees in Oregon. (p. 41).

Detection

A LEPTOPODID BUG reported for first time in Nevada for a new State record. (p. 43).

Special Reports

Summary of Insect Conditions in Hawaii - 1971 (pp. 45-49).

Ecological Range For Imported Fire Ant - Based on Plant Hardiness. Map. Centerfold.

● Status of European Corn Borer in 1971 (Corrected) (pp. 50-56).

Reports in this issue are for week ending February 11 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.......................41

Insects Affecting

Forage Legumes.............41
Peanuts....................41
Sugar Beets................41
Potatoes, Tomatoes, Peppers.41
General Vegetables.........41
Deciduous Fruits and Nuts.41
Citrus.....................42
Man and Animals............42
Stored Products............43

Beneficial Insects...43
Federal and State Plant Protection Programs.....................43
Detection..43
Hawaii Insect Report...44
Summary of Insect Conditions in Hawaii - 1971...................45
Status of European Corn Borer in 1971 (Corrected)..............50
Ecological Range For Imported Fire Ant - Based on Plant Hardiness. Map. Centerfold.

WEATHER OF THE WEEK ENDING FEBRUARY 14

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Unpleasant weather prevailed Monday over much of the Nation early in the week. Moderate rains fell along the northern Pacific coast, with light snow in nearby hills and mountains. Showers and thunderstorms occurred along the gulf coast. Snow fell in the southern Appalachians. Icy roads slowed travel from northeastern Pennsylvania to southern New England. Cloudy, damp weather prevailed along a front through the central and southern Atlantic States. Rain fell along the Atlantic seaboard as far south as northern Florida. Tuesday's precipitation was sparse, except for some rain along the coast in Far Northwest with snow in the mountains. Light snow from southern South Dakota to western Kansas and eastward to West Virginia and a few snow flurries in Lee of the Great Lakes. Clearing weather occurred in the South and along the Atlantic coast. Midweek, light snow fell in the central Rocky Mountains and from the northern and central Great Plains to the Ohio River Valley. Intermittent snow caused slippery roads in Illinois late Monday evening. Rains slackened some after midweek, but began again as the weekend approached. A Pacific storm produced rain or drizzle along the Washington and Oregon coast, with snow in the higher Cascades and eastward to the Rocky Mountains. Strong winds blew down the eastern slopes of the Rockies, gusting on Saturday afternoon 50-65 m.p.h. Livingston, Montana, recorded gusts of 71 m.p.h. Storm over the East intensified and produced widespread precipitation Saturday and Sunday. Strong winds occurred over much of East, especially along the coast. Gusts reached 60 m.p.h. at Cape Hatteras, North Carolina, and 65 m.p.h. at Newark, New Jersey, several inches of snow fell in parts of the Appalachians. Twelve to 14 inches buried Canaan Valley, West Virginia, and 9 inches fell at Mount Washington, New Hampshire. Heavy rains flooded some roads and highways closing them to traffic Sunday afternoon. Large area in the Southwest received no rain. Some localities in the Southwest have received no rain since late December.

Weather of the week continued on page 44.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (*Schizaphis graminum*) - ARIZONA - Counts of 5 per 100 plants of barley and wheat on eastern side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 0-1 per linear foot of barley in northern Dona Ana County. (Riddle). TEXAS - Light on small grains in Archer and Clay Counties, some still present in Motley County. (Boring).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Ranged 3-6 per linear foot of barley in northern Dona Ana County. (Riddle).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Ranged 25-350 per 100 sweeps of alfalfa in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light, 1 per square foot, in alfalfa in northern Chaves County. (Mathews).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - TEXAS - Larvae ranged 60-160 per square foot in random samples of alfalfa in Burleson County. (Latham).

THREECORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Ranged 25-250 per 100 sweeps of alfalfa in Yuma County. (Ariz. Coop. Sur.).

PEANUTS

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) - NORTH CAROLINA - Losses estimated at $200,000 on 20,000 acres in Northampton County. Resistance to miticides observed during 1971. (Hunt).

SUGAR BEETS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Light to moderate in crowns of beets in many fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - FLORIDA - Increased on potatoes and tomatoes in Homestead area, Dade County. (Lee).

GENERAL VEGETABLES

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - Overwintering adults ranged less than 5 per row yard on 600 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (*Psylla pyricola*) - OREGON - Overwintering females on pear at Hood River, Hood River County, noted with mature eggs but oviposition not underway. Egg depostion expected to begin within next 7-14 days. (Zwick).

SAN JOSE SCALE (*Quadraspidiotus perniciosus*) - OREGON - Population buildup in orchards in Wasco and Hood River Counties. Scales prevalent on cherries at The Dalles and on pears in Hood River area. (Zwick).

CITRUS

Insect Situation in Florida - End of January - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 78 (norm 63) percent of groves; economic in 56 (norm 46) percent. Population decreased and expected to decrease further in February. Still above average and in high range. Highest districts west, south, central, and north. Rust mites will be a threat to prebloom and postbloom. CITRUS RED MITE (*Panonychus citri*) infested 26 (norm 36) percent of groves; economic in 3 (norm 12) percent. Population below normal and very low, little change expected. Highest district west. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 27 (norm 33) percent of groves; economic in 6 (norm 12) percent. Below normal abundance and at very low level. Light decrease expected. Highest district east. GLOVER SCALE (*Lepidosaphes gloverii*) infested 76 (norm 78) percent of groves; economic in 2 (norm 15) percent. Population below normal and in moderate range. Will continue near present level. Highest district west. PURPLE SCALE (*L. beckii*) infested 68 (norm 77) percent of groves; economic in 2 (norm 8) percent. Decreased to low level and will continue low. Highest district north. CHAFF SCALE (*Parlatoria pergandii*) infested 50 (norm 59) percent of groves; economic in 1 (norm 10) percent. Population will remain normal and low in all districts. YELLOW SCALE (*Aonidiella citrina*) infested 28 (norm 60) percent of groves; economic in 1 (norm 12) percent. Population very low in all districts, except east which is low to moderate. BLACK SCALE (*Saissetia oleae*) infested 51 (norm 37) percent of groves; economic in 31 (norm 17) percent. Decreased but still largest for any January in past 21 years of record. Additional decrease expected. Considerable variation among districts. Highest east and central. AN ARMORED SCALE (*Unaspis citri*) infested 30 percent of groves, economic in 21 percent. Population increased as expected due to warm winter weather. Further increase predicted due to spread by picking crews and lessening chance of subfreezing weather. MEALYBUGS, APHIDS, and SIXSPOTTED MITE (*Eotetranychus sexmaculatus*) currently near normal low levels for time of year. WHITEFLY larvae in normal moderate abundance but adults and eggs more numerous than average. This portends greater infestation of the spring flush. (W.A. Simaton (Citrus Expt. Sta., Lake Alfred)).

MAN AND ANIMALS

SCREWWORM (*Cochliomyia hominivorax*) - No cases reported in U.S. February 6-12. Total of 67 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 25, Chihuahua 2, Coahuila 12, Nuevo Leon 4, Tamaulipas 24. Total of 13 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Texas 10,153,000; Mexico 88,887,000. (Anim. Health).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - KENTUCKY - Grubs averaged 3.8 per head of dairy cattle in Fayette County. (Barnett).

ITCH MITE (*Sarcoptes scabiei*) - TEXAS - Three herds of cattle quarantined for scabies in western part of Hardeman County and in Motley County; testing underway and some herds treated. (Green).

SCAB MITE (Psoroptes equi) - Outbreak reported on cattle for first time in IOWA. Continued to infest cattle in KANSAS, OKLAHOMA, TEXAS, and NEW MEXICO during January. More than 100,000 head involved in these States. (Anim. Health).

CATTLE LICE (Haematopinus spp.) - OKLAHOMA - Mainly H. eurysternus (shortnosed cattle louse) heavy on cattle in Muskogee and Cotton Counties, moderate in Garfield County, and light in Cleveland County. (Okla. Coop. Sur.).

LONGNOSED CATTLE LOUSE (Linognathus vituli) - VIRGINIA - Counts of less than 1 per square inch on 70 Hereford cows and 10 per square inch on suckling calves at farm in Appomattox County. In another herd of 100 cows, counts lighter. Averaged 5 per square inch on third herd of 60 calves on withers, dewlaps, and heads. (Roberts).

STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - NORTH DAKOTA - Adults 1,280 per bushel in 17,000 bushels of stored wheat in Cass County. (McBride).

FLAT GRAIN BEETLE (Cryptolestes pusillus) - NORTH DAKOTA - Adults 384 per bushel in 17,000 bushels of stored wheat in Cass County. (McBride).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - CALIFORNIA - Bee keepers moved hives into almond orchards statewide. Almond buds beginning to swell. (Cal. Coop. Rpt.).

A LEPTOPODID BUG (Patapius spinosus) - NEVADA - Adults collected under boards and cardboard at Reno, Washoe County, November 21, 1971, by M.A. and R.C. Bechtel. Determined by R.C. Bechtel. This is a new State record. (Bechtel). Little known about this species. Other members of this genus usually predacious. Occurs in Mediterranean region and California. (PP).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Larvae in cocoons 95+ percent alive on roots of cotton stalks in southern Eddy County first week of February. (Mathews).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey in northern San Diego, San Diego County, negative. (Cal. Coop. Rpt.).

DETECTION

New State Record - A LEPTOPODID BUG (Patapius spinosus) - NEVADA - Washoe County. (p. 43).

HAWAII INSECT REPORT

Turf and Pastures - GRASS WEBWORM (Herpetogramma licarsisalis) larvae trace, as many as 5 per square foot, in Bermuda grass fairway on Oahu. (Funasaki, Kashiwai).

General Vegetables - Mixed populations of LEAF MINER FLIES (Liriomyza spp.) and GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) were moderate to heavy in 0.25 acre of tomato at Hamakua and at Keaau, Hawaii; larval mines trace and T. vaporariorum light in 1.5 acres of cucumber. (Kobayashi). All stages of greenhouse whitefly heavy in 0.25 acre of dasheen, and nymphs and adults of WATERLILY APHID (Rhopalosiphum nymphaeae) light, about 10 percent of aphids mummified at Hamakua, Hawaii.

Fruits and Nuts - SOUTHERN GREEN STINK BUG (Nezara viridula) feeding noted on 318 of 1,183 macadamia nuts collected from orchards, at Haui, Kohola, and Kapaau. First report of damage by this species since late 1963 and early 1964 on Hawaii. Cluster of N. viridula eggs parasitized by Trissolcus basalis (a scelionid wasp) noted at Waipahu, Oahu; in a small planting of snap beans.

Man and Animals - Collected 146 VEXANS MOSQUITO (Aedes vexans nocturnus) and 1,778 SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) during January from 56 light traps on Oahu. Aedes ranged 0-19 per trap at Honouliuli. Culex ranged 0-740 per trap at Kailua. (Mosq. Contr. Br. State Dept. Health).

Weather of the week continued from page 40.

TEMPERATURES: The Far Southwest was fair and pleasantly mild early in the week. Phoenix, Arizona, registered 73 degrees Monday and Tuesday afternoons. Southern Florida was comfortably warm. The mercury at Miami reached 84 degrees Monday and 75 degrees Tuesday. In contrast, bitter cold continued over the northern Great Plains. Portions of North Dakota remained below zero Monday and Tuesday afternoons. On Monday afternoon, maximum temperatures ranged from below zero in parts of North Dakota and Minnesota to the 40's in most of Texas. The western edge of the Great Plains was much warmer than farther east. North Platte, Nebraska, warmed to 53 degrees Monday, when the mercury at Norfolk, Nebraska, climbed to only 12 degrees. Subzero temperatures occurred as far south as Kirksville, Missouri, and to the Ohio River on Tuesday when Cincinnati, Ohio, registered 3 degrees. Tuesday morning, subzero weather occurred in parts of 17 States. Cold reached the Gulf of Mexico. Beaumont, Texas, recorded 30 degrees and Jackson, Mississippi 27 degrees Wednesday morning. Bitter cold gripped the northern Great Plains. Spencer, Iowa, registered -32 degrees and Sioux Falls -27 degrees Wednesday morning. Cold sunny weather continued over much of the Nation through Wednesday. Thursday was slightly warmer. A warming trend continued Friday and the weekend. Temperatures averaged above normal over the Far West, the northern and central Rocky Mountains, and southern Florida, and cooler than normal from eastern South Dakota to northern Missouri and eastward to extreme western Pennsylvania, averaged 10 to 15 degrees colder than normal.

SUMMARY OF INSECT CONDITIONS IN HAWAII - 1971

Highlights

Six new Western Hemisphere records were reported in 1971. SORGHUM MIDGE infested 2,000+ acres of sorghum. An ADELGID is spreading on pine but is under rigorous control. A BARK BEETLE infested coffee at Kona for the first time.

Detection

Six species were reported as new to the Western Hemisphere as follows: An OEDEMERID BEETLE (Ananca kanack) on Hawaii, a REDUVIID BUG (Haematoecha rubescens) on Oahu, a FULGORID PLANTHOPPER (Lamenia caliginea) on Kauai, a SWALLOWTAIL BUTTERFLY (Papilio xuthus) on Oahu, a NOCTUID MOTH (Pericyma cruegeri) on Kauai, and a PIOPHILID FLY (Protopiophila australis) on Oahu.

Five species were reported as new to Hawaii as follows: A MEMBRACID BUG (Antianthe expansa); an ENCYRTID WASP (Aphycus mexicanus), COTTON LEAFPERFORATOR (Bucculatrix thurberiella), an ARMORED SCALE (Lepidosaphes pini), and a LYGAEID BUG (Neacoryphus bicrucis). All were found on Oahu.

General Vegetables

Sporadic infestations of LEEK MOTH (Acrolepia assectella) occurred in green onion fields at Koko Head, Ewa, Pearl City, and Waianae on Oahu and at Waikapu and Kahului on Maui during the first half of 1971; activity was practically nil during the remainder of the year. Larvae and adults of PEPPER WEEVIL (Anthonomus eugenii) caused heavy damage and premature fruit drop of bell peppers at Kihei, Maui, during May. Moderate infestation of the same host occurred at Wailua, Kauai, during August. CABBAGE WEBWORM (Hellula rogatalis) was light for the second consecutive year on mustard cabbage and daikon at Koko Head, Waimanalo, and Waianae, Oahu. TOMATO PINWORM (Keiferia lycopersicella) damaged small tomato plantings during February and November on Maui. Previously unreported from Maui, it now occurs on every major island in the State except on Lanai. A severe infestation also occurred in a small planting of eggplant at Pearl City, Oahu, during November despite an intensive chemical spray program.

BEAN FLY (Melanagromyza phaseoli) infestations were generally light in snap and long bean plantings on Maui and Kauai. Moderate to heavy parasitism by Opius spp. (braconids) and Halticoptera patellana (a pteromalid wasp) was noted on these islands. On Oahu, populations were generally light on commercial snap beans, soybeans, and yardlongbeans. Severe infestations occurred in these crops when chemical applications were neglected during the cotyledon stage. Parasitism was extremely low. TARO LEAFHOPPER (Tarophagus proserpina) populations were generally light in taro plantings on Maui and Oahu. Nymphs and adults of Cyrtorhinus fulvus (a predacious mirid bug) were moderate amid leafhopper populations. CARMINE SPIDER MITE (Tetranychus cinnabarinus) populations were sporadic and heavy in eggplants and snap beans on Oahu. Populations were generally light on Kauai and Maui on these crops and on tomatoes, cucumbers, papayas, and watermelons. Intensive chemical spray programs were necessary to maintain low levels.

GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) populations were generally light to moderate except for two heavy peaks during the early months of 1971 and early fall at Waimanalo, Oahu. Populations were heavy in fields of bittermelon at Pupukea, Oahu, and cucumber at Waimanalo during February. Infestations were generally light in tomato, cucumber, eggplant, watermelon, and bittermelon fields on Maui and Oahu. Adults were heavy during May in a small zucchini planting.

Corn, Sorghum

SORGHUM MIDGE (*Contarinia sorghicola*) populations ranged light to heavy in 2,000+ acres of sorghum at Kilauea, Kauai. October infestations were severe in 60 acres of mature sorghum. Seed yield was practically nil in this planting. Parasitism by a EUPELMID WASP (*Eupelmus popa*) averaged 5 percent of randomly collected, infested material. Populations of a PYRALID MOTH (*Cryptoblabes aliena*) were moderate to heavy, especially in mature seedheads of sorghum in 2,000+ acres at Kilauea, throughout the fall. SUGARCANE LEAFROLLER (*Hedylepta accepta*) caused moderate damage to 5 to 6 month-old sugarcane at Honokaa, Hawaii, in April. Parasitism by a braconid and a tachina fly was heavy in this 375-acre planting. SUGARCANE LEAFHOPPER (*Perkinsiella saccharicida*) infestations were light in sugarcane fields at Ewa, Oahu, and at Puunene and Omapio, Maui, early in 1971. Nymphs and adults of *Tytthus mundulus* (cane leafhopper egg sucker) were light amid infestations on Maui. CORN LEAF APHID (*Rhopalosiphum maidis*) nymphs and adults were light in 30 acres of seed corn at Kilauea, Kauai during September and were heavy on subsequent plantings of sorghum in October. Moderate numbers of *Coelophora inaequalis* (a lady beetle) and heavy parasitism by *Lysiphlebus testaceipes* (a braconid) were noted in early November.

Turf, Pasture, Rangeland

Adults of a SKIPPER (*Hylephila phylaeus*) are apparently stabilized in all areas of infestation. Larval damage has been negligible, even where adults were moderate on lawns and ornamentals. GRASS WEBWORM (*Herpetogramma licarsisalis*) caused heavy damage to Kikuyu grass pastures at Honomalino, Hawaii, early in 1971; populations in pastures, golf fairways, and memorial parks remained generally trace to light statewide.

Fruits and Nuts

Adults of LARGE MANGO TIP BORER (*Bombotelia jocosatrix*) were taken at Kahului and Hana, Maui, during April for a new island record. Light damage was noted to 100+ mango trees at Haiku, Maui, in October with about 10 percent of the young terminal leaves affected. BROWN SOFT SCALE (*Coccus hesperidum*) infestation was moderate on papaya seedlings at Hana, Maui, in September and about 5 percent of the adult scales were parasitized by hymenopterous parasites. COCONUT LEAFROLLER (*Hedylepta blackburni*) damage was heavy to coconut trees at Wailua, Waipouli and Kapaa on Kauai, at Waihee on Maui, and at Waimanalo and Makaha on Oahu during the winter and early fall. Infestations were generally light to moderate in most of these areas during the remainder of the year. Light numbers of hymenopterous and dipterous parasite cocoons were noted in most situations. Heavy infestations of a FLATID BUG (*Melormenis antillarium*) were noted on roadside guava trees in late 1970 near the Hilo Airport, Hawaii. On Oahu, survey of wild guava trees was negative in 1971.

BROWN CITRUS APHID (*Toxoptera citricida*) infestations occurred on backyard citrus trees throughout Oahu; nymphs and adults were as many as 100 per square inch of young leaves and flower buds during peak infestations. Moderate numbers of nymphs and adults of *Orcus chalybeus*, *Azya luteipes*, and *Coelophora inaequalis* (lady beetles) were noted amid infestations.

Forest and Shade Trees

Heavy infestations of a CONIFER APHID (*Cinara carolina*) were noted on loblolly pine at Olinda, Maui, during March. This population gradually decreased, and by early October was trace, with less than one percent of the trees infested. *Coelophora inaequalis* (a lady beetle) was moderate amid aphids during late summer. Light infestations also occurred in 200 acres of pine at Polipoli on Maui, and at Princeville, Hanalei on Kauai during late summer and early fall. Heavy larval populations of KIAWE FLOWER LOOPER (*Cosymbia serrulata*) in April caused severe damage to racemes in 200 acres of Kiawe at Waimea and Kekaha, Kauai. Light populations in April on the same host at Olowalu, Maui, caused moderate damage to racemes. Light trap collections on Oahu revealed a sharp peak in August with 1,839 adults taken from 55 light traps. Adults of a NOCTUID MOTH (*Melipotis indomita*) were noted at large in kiawe and koa-haole thickets during January at Lanai City, Lanai for a new island record. During the summer, larval feeding caused trouble with monkeypod trees on Hawaii and an aerial application of *Bacillus thuringiensis* was made on 200 acres.

On Maui an isolated incidence of heavy larval populations on kiawe trees occurred at Napili. On Oahu, larval populations were relatively light on kiawe and monkeypod trees; most of the monkeypod trees apparently have recovered from a heavy attack in late 1970. Light trap collections indicated sharp peaks of adults during May and August of 1971. Larvae were numerous at the base of kiawe trees at Punahou, Honolulu in early November. Surveys for an ADELGID (*Pineus pini*) on Oahu revealed widespread infestations on bonsai pines in several residential districts. On Maui, infestations on *Pinus* sp. were discovered at Olinda in July for a new island record. Delimiting surveys were conducted and all infested plants were chemically treated. On Hawaii at the original site of discovery at Waikii, infestations of *Pinus pinaster* trees increased progressively and terminal dieback of younger trees was readily observed by June. Infestations of various *Pinus* spp. were noted along the Saddle Road and at residences at Paauilo, Honokaa, and Kamuela. Infested trees were felled and isolated with Waikii; chemical treatment was applied or recommended at all other situations on this island. MONKEYPOD MOTH (*Polydesma umbricola*) predominated in larval and pupal collections from loose bark of monkeypod trees throughout Oahu contrary to last year. Larval peaks in this host situation during mid-summer coincided with flushing of this host in late summer or early fall.

Infestations of a BARK BEETLE (*Xylosandrus compactus*) during winter and late summer in 300 acres of acacia saplings caused dieback of infested trees at Waikea, Hawaii. Moderate to heavy populations were found infesting coffee and *Annona* trees at Holualoa, Kona on Hawaii during September. Although this pest was first reported on the island of Hawaii in December 1966, this was the first record of its occurrence in the coffee district of Kona.

General Pests

Damage by CHINESE ROSE BEETLE (Adoretus sinicus) was moderate to heavy to ornamentals and shade trees on Oahu and Hawaii; light damage occurred in isolated instances on snap beans, eggplant, and edible ginger in commercial fields on Oahu. Infestations of COCONUT SCALE (Aspidiotus destructor) on coconut trees throughout Oahu were moderate; generally, colonies were confined to older fronds. Nymphs and adults of Telsimia nitida and Lindorus lophanthae (lady beetles) were observed preying on this scale on coconut and on commercial papaya and banana. Light and sporadic in papaya and banana plantings, this scale apparently does not prefer these hosts. CORN EARWORM (Heliothis zea) larval infestations were heavy on lettuce and carnations at Waipouli, Kauai, and moderate in a yard planting of roses at Wailua, Kauai, during April. Larval activity ranged light to heavy in most cornfields on Oahu, despite intensive spray programs. During October, light infestations occurred on young sorghum seedheads in 250 acres at Kilauea, Kauai, and a trace population was noted in a tomato field at Waialua, Oahu. A severe outbreak of this pest at Anahola, Kauai, during the summer caused heavy damage in tomato, eggplant, and sweet pepper fields. This unusually heavy infestation may be attributed to large acreages of corn which abandoned at nearby Kilauea at about this time.

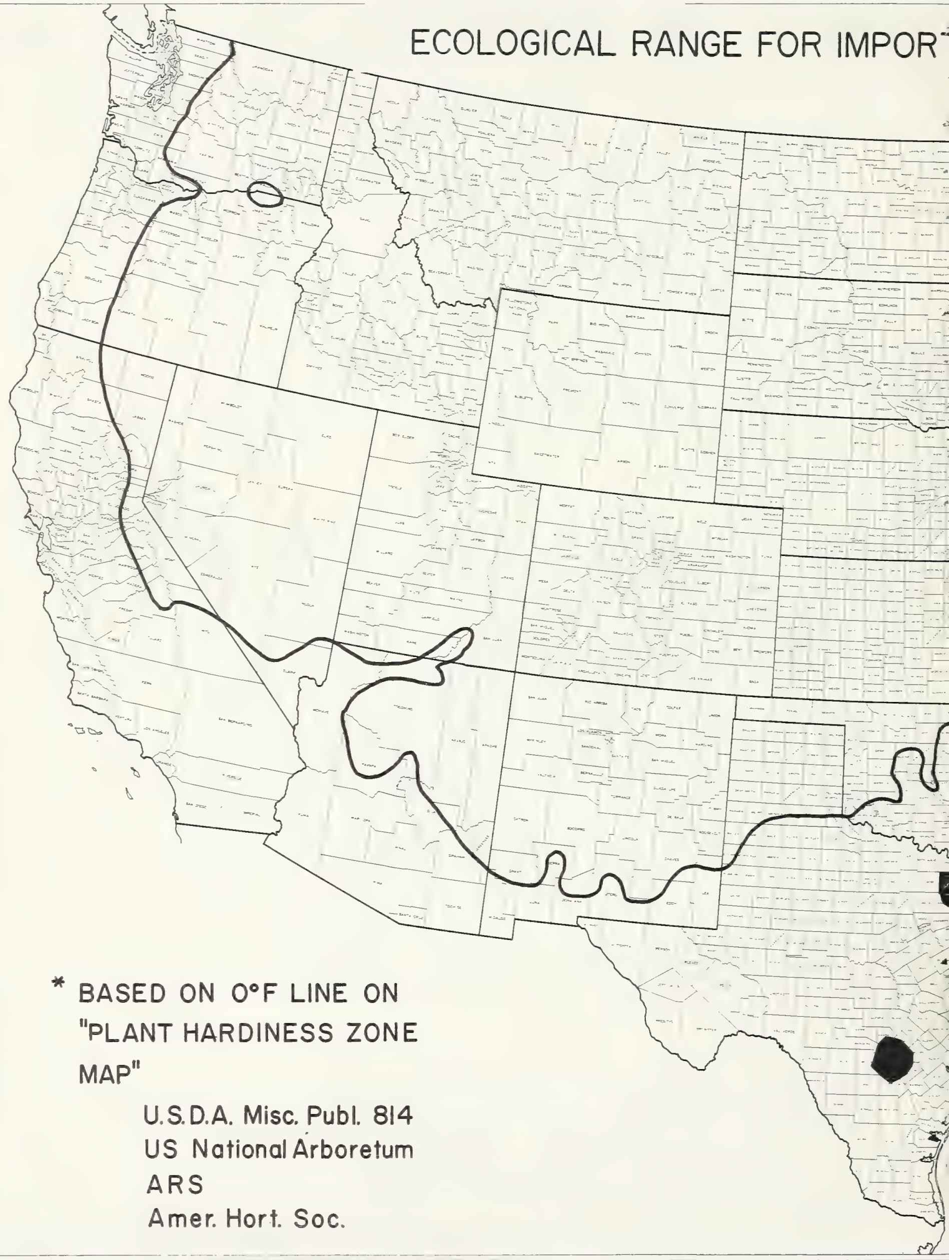
Miscellaneous Pests

GIANT AFRICAN SNAIL (Achatina fulica) remained heavy during the winter at Poipu, Kauai, where 460+ snails were collected. During March, poison bait was dropped by air; snail activity decreased and became nil here and at Wahiawa during the summer. Activity gradually increased, and during September and October collected 30 and 245 snails respectively at Poipu. On Hawaii, snail activity throughout 1971 was extremely light and a total of 53 was collected at Kona (50 during August). On Oahu heavy populations were noted in wasteland brush on the grounds of the University of Hawaii, and at Wheeler Air Force Base during late summer. Host relationship of a GEOMETRID MOTH (Semiothisa santaremaria) was finally solved when larvae were collected from leaves of koa haole and Desmanthus virgatus in a pasture at Poipu, Kauai, during January. Dispersion on Oahu was rapid and by late spring large populations of larvae and adults were evident throughout the island. Light trap collections on Oahu reveal monthly fluctuating population levels. New island records were established for this pest on Maui, Molokai, Lanai, and Hawaii. S. santaremaria appears to have replaced KOA HAOLE LOOPER (Anacamptodes fragilaria) as the primary foliage feeder on koa haole.

Man and Animals

VEXANS MOSQUITO (Aedes vexans nocturnus) collections in 55 light traps on Oahu from December 1970 to September 1971 averaged 22.4 per trap per month. The highest monthly average per trap was 41.2 in January; the lowest was 0.3 in March. Collections were generally highest during winter and late spring and lowest during summer. Trapped simultaneously, SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) averaged 97.1 per trap per month. The highest monthly average per trap was 169.6 in January; the lowest was 13.6 in June. Collections were generally highest during winter and lowest during summer.

ECOLOGICAL RANGE FOR IMPOR



* BASED ON 0°F LINE ON
"PLANT HARDINESS ZONE
MAP"

U.S.D.A. Misc. Publ. 814
US National Arboretum
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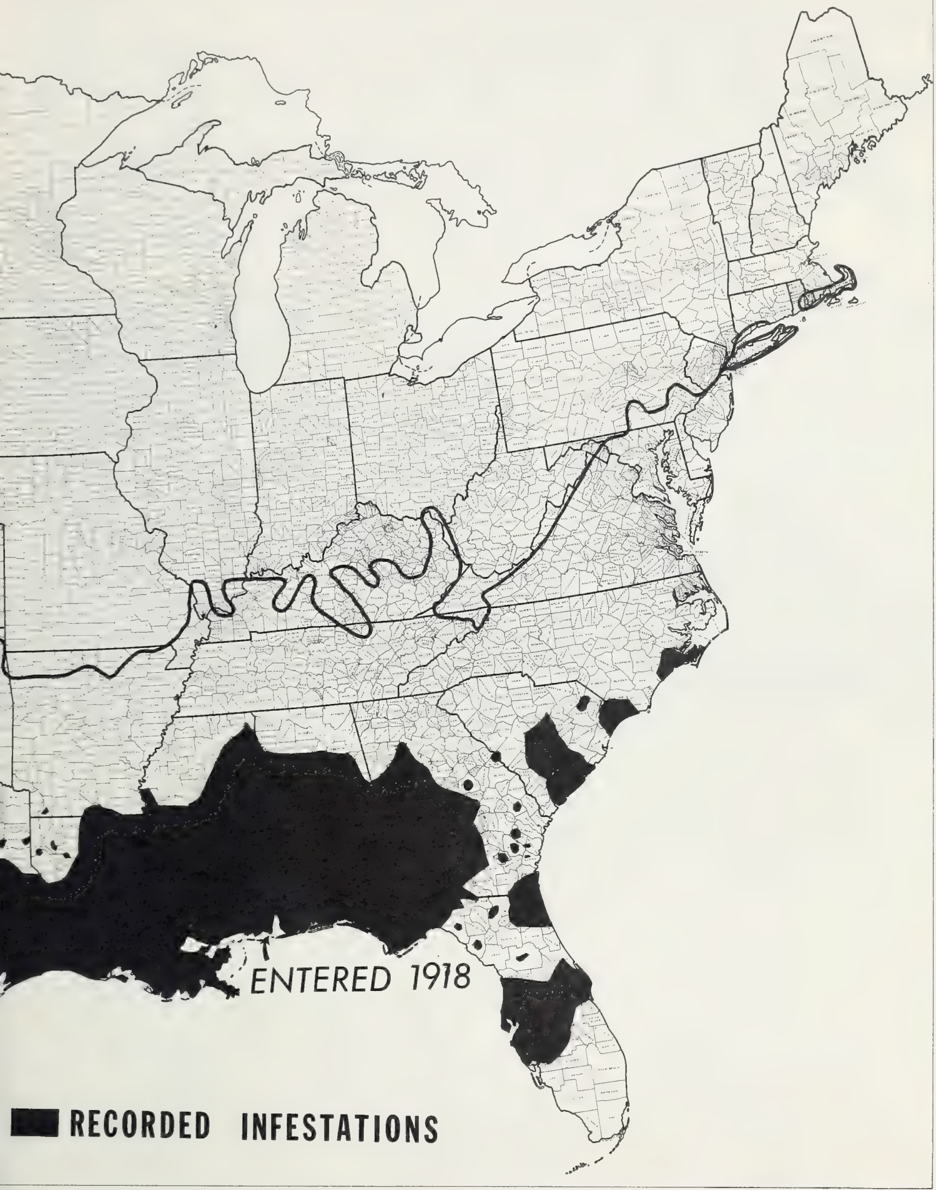
Amer. Hort. Soc.

FIRE ANT - BASED ON PLANT HARDINESS*



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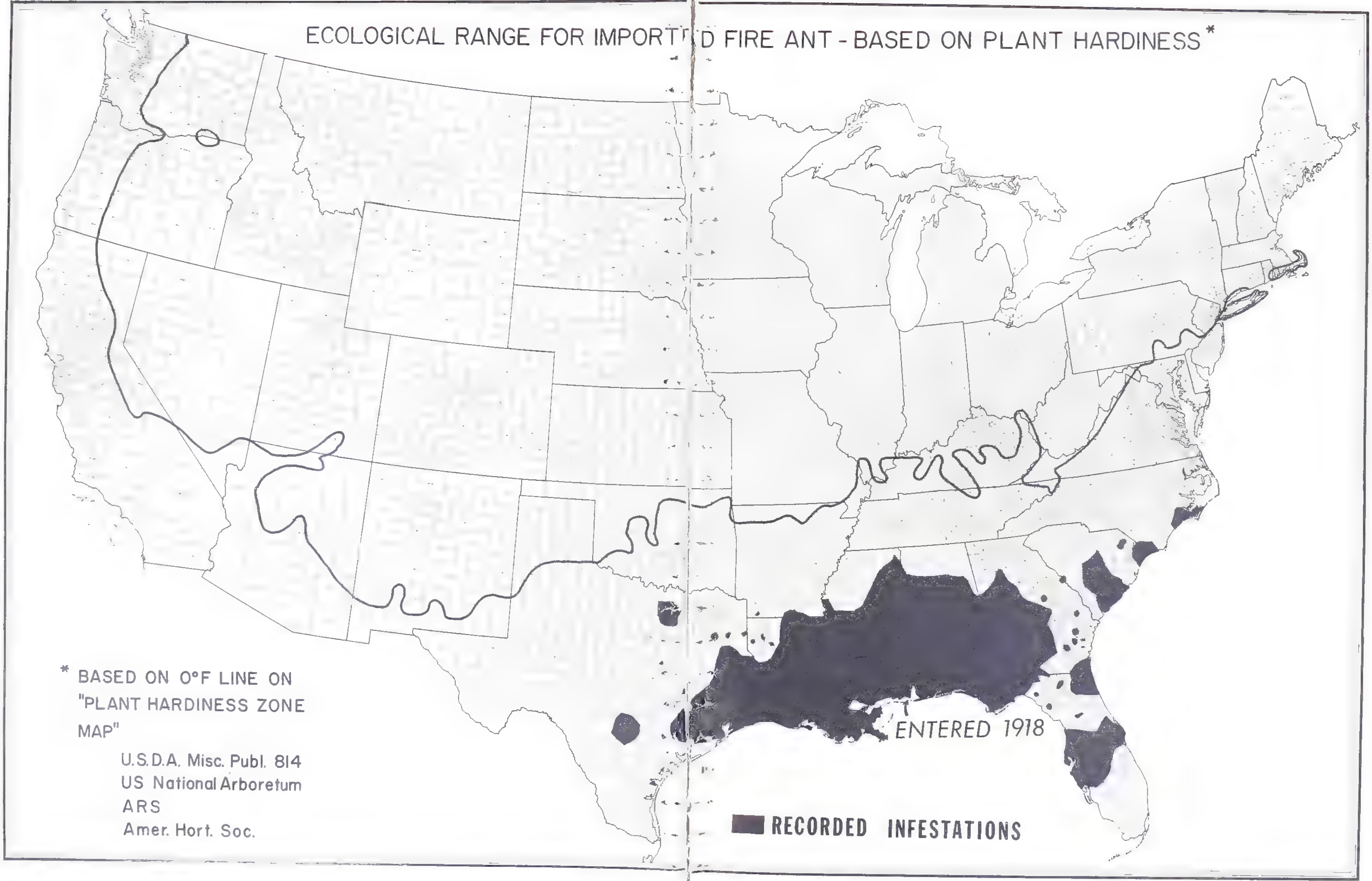

ECOLOGICAL RANGE FOR IMPORTED FIRE ANT - BASED ON PLANT HARDINESS*

* BASED ON 0°F LINE ON "PLANT HARDINESS ZONE MAP"

U.S.D.A. Misc. Publ. 814
US National Arboretum
ARS
Amer. Hort. Soc.

Beneficial Insects

A random survey in April for SOURBUSH SEED FLY (*Acinia picturata*) on sourbush flowers (*Pluchea* sp.) at Komohana, Kulani, and Hawaiian Homes on Hawaii revealed an average of 26 percent infestation. *A. picturata* was introduced from Guatemala in 1959 to control *Pluchea* spp. Adults of SOUTH AFRICAN EMEX WEEVIL (*Apion antiquum*) were moderate on emex seedlings at Waiakoa, Maui, during January. By May, about 90 percent of the emex in pastures were infested. Larvae and adults of a GORSE WEEVIL (*Apion ulicis*) were heavy in about 84 percent of mature gorse seed pods in a forest reserve at Olinda, Maui. Larvae of a CACTUS MOTH (*Cactoblastis cactorum*) were moderate in 200 acres of cactus at Kekaha, Kauai, during October; about 10 percent of the pods were infested. An ENCYRTID WASP (*Coccidoxenus mexicanus*) was the most active parasite of *Ceroplastes cirripediformis* (barnacle scale) found infesting passionfruit vines at Kahului, Maui, during 1971. About 75-95 percent of the nymphs of *C. cirripediformis* in 40 acres of this planting were found to be parasitized in early April.

Adults of a CRYPTOCHAETID FLY (*Cryptochetum iceryae*) emerged from *Icerya purchasi* (cottonycushion scale) infesting *Erythrina* trees at Eleele, Kauai, in August for a new island record. An adult of a TACHINA FLY (*Eucelatoria armigera*) emerged from 1 of 6 *Callopistria* sp. (a noctuid moth) collected at Aina Haina in early April. This is the first record of field parasitism in Hawaii of this pest. A PUNCTUREVINE STEM WEEVIL (*Microlarinus lypriformis*) was moderate to heavy on *Tribulus cistoides* and *T. terrestris* material collected on Maui. *T. cistoides* at Ka'u, Hawaii, was similarly affected in May. Puncturevine material from Maui, infested with *M. lypriformis*, was introduced in this area in early March 1971. BRACONIDS (*Opius phaseoli* and *O. importatus*) were found moderately infesting *Melanagromyza phaseoli* (bean fly) on Maui and Kauai. Parasitism in commercial plantings of these crops on Oahu and Hawaii was generally light as were bean fly infestations, due to intensive chemical spray applications. Percentage infestation of fruits and terminals of *Melastoma malabathricum* at various areas on Hawaii and Kauai steadily decreased due to activity of an ARCTIID MOTH (*Selca brunella*).

Status of the European Corn Borer in 1971[1]

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hubner)) in the fall of 1971 were conducted by cooperating agencies in 15 States. All survey data, summaries, or records of field observations were processed by the Economic Insect Survey and Detection Staff in Hyattsville, Maryland. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1971 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some minor differences in compiling data, the accepted survey methods were followed in all cases. The survey was continued on a district basis whenever possible in 1971. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time from thirteen counties during 1971; however, the counties were in the States already known to be infested. This was eight more than reported the previous year. There were three new counties in Alabama, one county in Nebraska, and five from Kansas. South Dakota reports distribution now statewide.

Abundance: Fall populations of European corn borer increased in 8 of 15 States reporting in the survey. Decreases were recorded in Maryland, Kansas, Minnesota, Ohio, South Dakota, and Michigan. Kentucky reported abundance for the first time this year. The average number of borers per hundred plants increased in Indiana, attributed to the increase in early planted corn. Second generation populations were the heaviest since 1957 and reflect in part the ample free water available to females at the critical egg laying period. In Illinois, populations were 50 percent higher this year than last. Only 1 of 9 districts had a lower population than 1970; this was the west district. The 1971 population is 28 percent higher than the average for the past 10 years. Counts were the heaviest in the southern portion of Illinois. Populations increased in all the 5 major corn producing counties in southeastern North Dakota. In 1970, the average borers per 100 plants was 57, compared with 130 for 1971. Surveys in Iowa indicated the percent infestations were lower than last year in the southern district; elsewhere increased.

The European corn borer population in Kansas was about the same as in 1970, except for the increase in the east-central district. In Michigan, the population decreased from 142 borers per 100 plants in 1970 to 104 this year; heaviest counts were in the southern areas. Second generation populations in Minnesota were not as heavy as last year. Populations in Missouri were similar to those of 1970, as were those in Nebraska and South Dakota. There was a slight decrease in abundance in Maryland and Ohio. In Delaware, there was an increase from 283 borers per 100 plants to 358.

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[1] Survey data provided by State agricultural agencies. Data compiled and summarized by Economic Insect Survey and Detection Staff, Plant Protection Programs, Animal & Plant Health Service, United States Department of Agriculture.

Table 2 - European Corn Borer Abundance in Corn
Fall of 1971, Compared with Data for 1970

State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1970	1971
Delaware (Agr. Expt. Sta.)		
New Castle	255	157
Kent	347	427
Sussex	248	489
Average	283	358
Illinois (Natural History Survey, Ext. Ser.)		
Northwest	87	169
Northeast	61	89
West	130	108
Central	27	67
East	33	109
West-southwest	105	112
East-southeast	92	135
Southwest	4/	178
Southeast	4/	239
Average	76 1/	128 1/
Indiana (Ext. Ser., Expt. Sta.)		
North-northwest	38	180
North-northcentral	162	102
North-northeast	57	117
Northwest	12	106
North Central	38	107
Northeast	54	108
Southwest	58	78
South Central	13	88
Southeast	34	101
South-southwest	39	91
South-southcentral	24	74
South-southeast	39	47
Average	47	100
Iowa (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)		
District I	306	319
District II	181	436
District III	132	155
Iowa (Cont.)		
District IV	346	413
District V	241	564
District VI	131	180
District VII	528	443
District VIII	94	426
District IX	79	340
District X	353	209
District XI	286	217
District XII	211	153
Average	241	321
Kansas (Ins. Sur.)		
Northeast	100	70
North Central	135	70
East Central	52	111
Central	4/	32
Southeast	4/	34
South Central	-	4
Average	96	54
Kentucky		
Surveyed counties	-	35
Maryland (Agr. Ext. Ser.; Ins. Sur.)		
Eastern Shore	140	104
Southern	104	58
Central and Western areas	158	112
Average	141 3/	102 3/
Michigan (Ins. Sur.)		
Surveyed counties	148 2/	104 2/

1/ Average based on 46 comparable counties surveyed in 1970 and 1971, rather than districts.

2/ Averages based on field averages rather than district averages.

3/ Average based on averages for 16 counties rather than district averages.

4/ Not included in the 1970 status report.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1971, Compared with Data for 1970

	1970			1971			Comparable Districts or Counties Surveyed Both Years		
States	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	Number	Borers Per 100 Plants 1970	Borers Per 100 Plants 1971
Eastern									
Delaware	1	283	3	1	358	3	1	283	358
Maryland	3	134	16	3	102	16	3	134	102
Total	4		19						
Average 1/								209	215
North Central									
Illinois	7	76	39	9	128	46	7	76	128
Indiana	12	47	92	12	100		12	47	100
Iowa	12	241	99	12	321	99	12	241	321
Kansas	3	96	30	6	54		3	96	54
Minnesota	7	130	34	7	99	-	7	130	99
Missouri	7	130	38	7	133	38	7	130	133
Nebraska	5	396	25	5	401	25	5	396	401
North Dakota	1	57	5	1	130	5	1	57	130
Ohio	5	99	33	5	73	33	5	99	73
South Dakota	6	214	35		204	34	6	214	204
Wisconsin	9	102	52	9	275	52	9	102	275
Total	74		482						
Average 1/								145	170
Southern									
Kentucky		2/		1	35	8			35
Other									
Michigan	1	148	14	5	104	22	1	148	104

1/ Weighted average based on districts surveyed.
2/ Not included in the 1970 status report.

Table 2 (Continued)

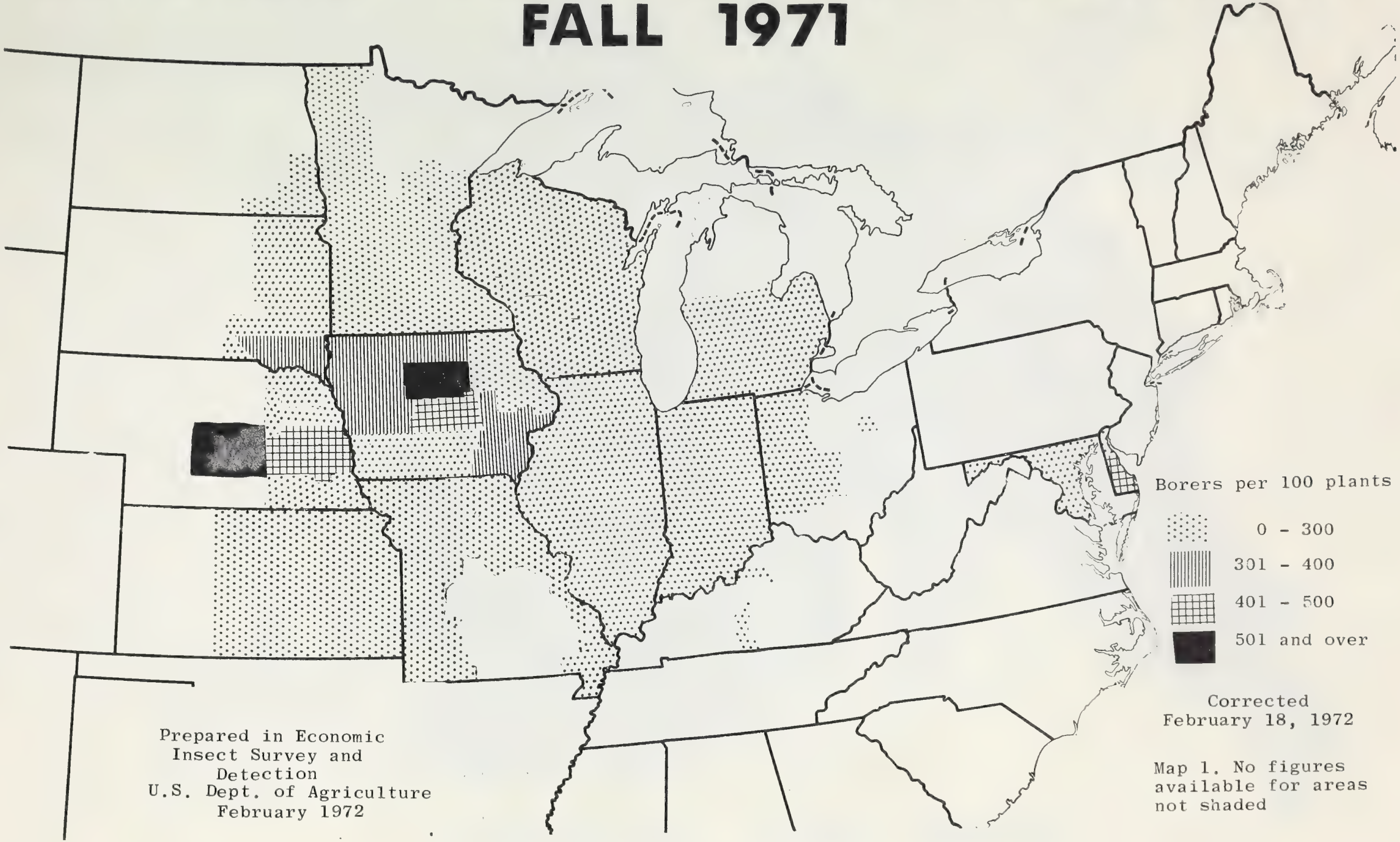
State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1970	1971
Minnesota (State Dept. Agr.)		
Southwest	246	102
South Central	222	171
Southeast	131	95
West Central	105	179
Central	57	61
East Central	89	40
Northwest	57	44
Average	130	99
Missouri (Ext. Ser., Ins. Sur.)		
District I	122	151
District II	187	165
District III	189	147
District IV	94	123
District V	138	129
District VI	4/	98
District VII	93	78
District IX	88	157
Average	130	133
Nebraska (Agr. Expt. Sta.; Ext. Ser., Ins. Sur.)		
Northeast	600	215
East	522	459
Southeast	336	297
Central	260	527
South	261	509
Average	396	401
North Dakota (State Dept. Agr.)		
Southeast	57	130
Ohio (Ext. Ser.; ARS, USDA)		
Northwestern	132	117
West Central	96	55
Central	57	28
Southwestern	59	51
Northeastern	198	77
Average	108 99 5/	67 73 5/
South Dakota (Agr. Expt. Sta., Ext. Ser.)		
North Central	235	171
Northeast	150	189
Central	100	67
East Central	279	221
Southeast	457	342
South Central	62	232
Average	214	204
Wisconsin (State Dept. Agr.)		
Northwest	104	59
North Central	110	39
West Central	187	129
Central	102	16
Southwest	118	105
South Central	125	42
Southeast	77	83
East Central	58	26
Northeast	35	15
Average	102	57 *

4/ Not included in the 1970 status report.

5/ Average based on counties surveyed.

*Corrected February 18, 1972.

EUROPEAN CORN BORER ABUNDANCE
FALL 1971

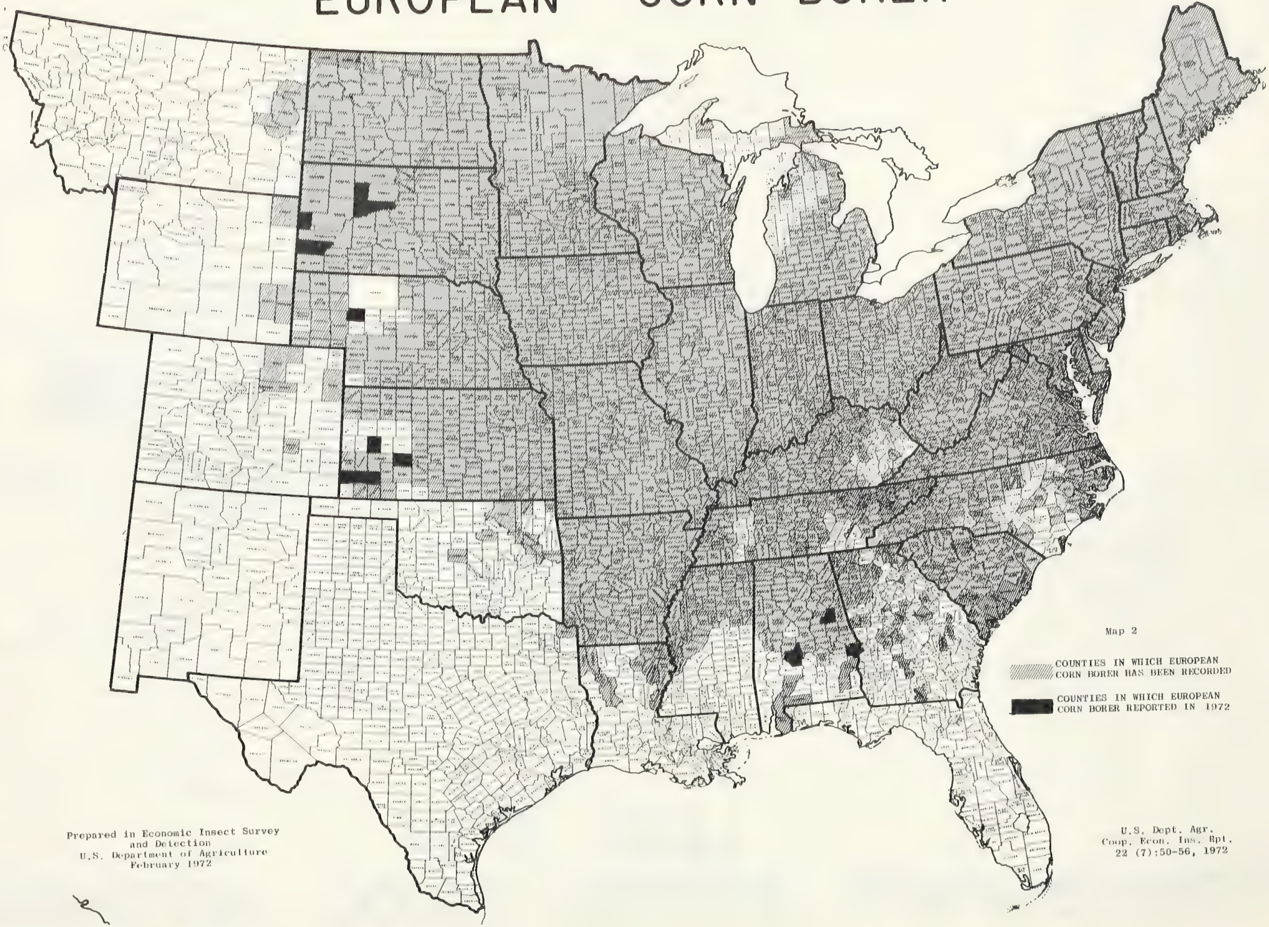


Corrected
February 18, 1972

Map 1. No figures available for areas not shaded

Prepared in Economic
Insect Survey and
Detection
U.S. Dept. of Agriculture
February 1972

EUROPEAN CORN BORER



Map 2

▨ COUNTIES IN WHICH EUROPEAN CORN BORER HAS BEEN RECORDED

■ COUNTIES IN WHICH EUROPEAN CORN BORER REPORTED IN 1972

Prepared in Economic Insect Survey
and Detection
U.S. Department of Agriculture
February 1972

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22 (7):50-56, 1972

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